INDEX TO VOLUME XXII.

[NOTE.—In this index the titles of principal papers and the headings of departments, as *Discussion*, are in italics.]

Accumulative deposits, 679
Acid waters in nature, 38
Ackerman formation, 618
Actinolite, 257
Adams, G. I., *Bauxite deposits of the southern states*, 615–624
  on bauxite formed in sink holes, 617
  and others, review of book by, 533
Adams, S. F., on minerals found in petrifactions, 729
Agar, W. M., on intergrowth of minerals, 404.
  reviews by, 107, 531, 643
Alabama, geology, 533
Alabandite, 238
Albite, experiments on, 25, 27
Algal structures in Biwabik formation, 707
Algerian iron ores, production, 540
Alleghany ridges, Virginia, 811
Allen, E. T., on sulphur in volcanic emanations, 38
Almaden quicksilver deposits, 575
Alteration, Hydrothermal, of certain silicate minerals (Leonard), 18
Alunite, 19, 372
  diffraction pattern, 28
  occurrence and formation, 19–20
  synthetic formation, 29
Alunitic gold ore in the Black Hills, An (Grout and Schwartz), 369
Amphibolite, 277
Analyses (*see* Chemical analyses)
Analysis of diatom oil, 366
  fresh water plankton, 368
Anderson, F. M., on diatomaceous shale beds, 460
  on the origin of California petroleum, 461
Anderson, Robert, on diatomaceous shale of Truckee formation, 150
  on granite boulders in diatomaceous shale, 460
  on the origin of California petroleum, 461
Andreasberg veins, 120
Andrée, K., on the origin of glauconite, 719
Andrussov, N., on diatoms of Black Sea, 144
Antimony, microchemical tests for, 836
An-ting limestone, China, 64
Antipathy of bornite and pyrrhotite, 99
Aplite dikes, Alaska, 159
Appalachian Plateau, Virginia, 819
Appalachian River, 615
Applied geophysical methods in America (Barton), 649
Aptian, Tunis-Algeria, 544
Arnold, R., and Anderson, R., on origin of oil in Coalinga oil fields, 136; in Santa Maria district, 135
Arnold, R., and Garfias, W. R., on origin of oil in Kern River district, 135
Arnold, R., and Johnson, R., on origin of oil in McKittrick field, 135
Arrhenius, Svante, review of book by, 411
Arsenic, microchemical tests for, 837
Arsenopyrite, 589
Artesian wells, leaky, exploring and repairing, 523
Artificial replacements, 406
Atkins, W. R. G., on hydrogen ion concentration of seawater, 364
Aubury, L. E., on talc deposits of California, 284
Aulacodiscus kittoni, 358, 360

Bain, H. F., *Minerals in relation to possible development in the Far East*, 213–229
Bancroft, W. D., on protective effect of chromic oxide, 714
Bandera County, Texas, Igneous dikes in (Dawson, Hanna, and Kirby), 621
Barker, G. F., on talcose schist, 250

INDEX TO VOLUME XXII.

[NOTE.—In this index the titles of principal papers and the headings of departments, as *Discussion*, are in italics.]

Accumulative deposits, 679
Acid waters in nature, 38
Ackerman formation, 618
Actinolite, 257
Adams, G. I., *Bauxite deposits of the southern states*, 615–624
  on bauxite formed in sink holes, 617
  and others, review of book by, 533
Adams, S. F., on minerals found in petrifactions, 729
Agar, W. M., on intergrowth of minerals, 404.
  reviews by, 107, 531, 643
Alabama, geology, 533
Alabandite, 238
Albite, experiments on, 25, 27
Algal structures in Biwabik formation, 707
Algerian iron ores, production, 540
Alleghany ridges, Virginia, 811
Allen, E. T., on sulphur in volcanic emanations, 38
Almaden quicksilver deposits, 575
Alteration, Hydrothermal, of certain silicate minerals (Leonard), 18
Alunite, 19, 372
  diffraction pattern, 28
  occurrence and formation, 19–20
  synthetic formation, 29
Alunitic gold ore in the Black Hills, An (Grout and Schwartz), 369
Amphibolite, 277
Analyses (*see* Chemical analyses)
Analysis of diatom oil, 366
  fresh water plankton, 368
Anderson, F. M., on diatomaceous shale beds, 460
  on the origin of California petroleum, 461
Anderson, Robert, on diatomaceous shale of Truckee formation, 150
  on granite boulders in diatomaceous shale, 460
  on the origin of California petroleum, 461
Andreasberg veins, 120
Andrée, K., on the origin of glauconite, 719
Andrussov, N., on diatoms of Black Sea, 144
Antimony, microchemical tests for, 836
An-ting limestone, China, 64
Antipathy of bornite and pyrrhotite, 99
Aplite dikes, Alaska, 159
Appalachian Plateau, Virginia, 819
Appalachian River, 615
Applied geophysical methods in America (Barton), 649
Aptian, Tunis-Algeria, 544
Arnold, R., and Anderson, R., on origin of oil in Coalinga oil fields, 136; in Santa Maria district, 135
Arnold, R., and Garfias, W. R., on origin of oil in Kern River district, 135
Arnold, R., and Johnson, R., on origin of oil in McKittrick field, 135
Arrhenius, Svante, review of book by, 411
Arsenic, microchemical tests for, 837
Arsenopyrite, 589
Artesian wells, leaky, exploring and repairing, 523
Artificial replacements, 406
Atkins, W. R. G., on hydrogen ion concentration of seawater, 364
Aubury, L. E., on talc deposits of California, 284
Aulacodiscus kittoni, 358, 360

Bain, H. F., *Minerals in relation to possible development in the Far East*, 213–229
Bancroft, W. D., on protective effect of chromic oxide, 714
Bandera County, Texas, Igneous dikes in (Dawson, Hanna, and Kirby), 621
Barker, G. F., on talcose schist, 250

Barlow, A. E., on Sudbury nickel deposits, 296
Barton, D. C., *Applied geophysical methods in America*, 649–668
Bastin, E. S., on intergrowth of minerals, 403
on natural reduction of sulphates, 492
Bateman, A. M., *Ore deposits of the Rio Tinto (Huelva) district, Spain*, 569–614
editorial, Our journal, 400
on the ores of the Slocan district, 498, 501
reviews by, 206, 207, 316, 411, 414, 415, 416, 533, 534, 640
Batto dike, Texas, 621
Baudisch, O., and Welo, L. A., on two-stage transformation of magnetite into hematite, 180
Baur, Emil, on production of muscovite, 22
Bauxite, occurrence in India, 482
in Appalachian region, 615
Bauxite deposits, Enrichment through the activity of microörganisms (Thiel), 480
Bauxite deposits of Arkansas, 620
Bauxite deposits of the southern states (Adams), 615
Bayley, W. S., reviews by, 645, 757, 853
Becking, L. B., Tolman, C. F., McMillin, H. C., Field, John, and Hashimoto, Tadaichi, *Preliminary statement regarding the diatom "epidemics" at Copalis Beach, Washington, and an analysis of diatom oil*, 356–368
Behre, Chas. H., Jr., review by, 414
Bell, J. M., on platinum in New Zealand, 347
Benedicks, Carl, review of book by, 205
Beni Bu Ifrur district, Morocco, 559
Beni Saf iron ore region, 556
Berg, George, *Zonal distribution of ore deposits in central Europe*, 113–132
Berry, E. W., on Cretaceous climate, 384
on lower Eocene flora, 618
on plants in South Carolina clays, 377
Berthon, L., on iron ore deposits of Tunis, 537
Beyschlag, E., and Schrieb, W., review of map by, 534
Beyschlag, F., Vogt, J. H. L., and Krusch, P., on ore deposits, 2
Bibliography, geology of Virginia, 824
geophysical methods of prospecting, 665
iron ores of North Africa, 563
Bilbao district iron ores, 559
Bilbao type of iron ores, 540
Binney, Edwin, Jr., review by, 644
Biogenesis of hydrocarbons by diatoms (Tolman), 454
Biotite, 256
Bisbee, Arizona, Oxidation subsidence at (Wisser), 761
Bismuth, microchemical tests for, 837
Blackwelder, Eliot, on China, 224
Blanchard, Roland, with Boswell, P. F., *Oxidation products derived from sphalerite*, 419–453
Blue muds, 719
Blue Ridge, Virginia, 799
Blum, on minerals found in petrifactions, 729
Boring, Powell Valley, Virginia, 809
Bornhardt, W., on the sideritic lodes of Siegerland, 125
Boss mine, Nevada, platinum, 346
Boswell, P. F., and Blanchard, Roland, *Oxidation products derived from sphalerite and galena*, 419–453
Bosworth, R. G., review of paper by, 755
Bottom mud of Shiogama Bay, 144
Boydell, H. C., discussion, Successive banding around rock fragments in veins, 94
on colloidal solutions, 714
on formation of sericite, 19
Bragg, W. H., on the structure of magnetite, 184
Brandt, K., on ether in marine diatoms, 365, 465
Branner, J. C., on origin of diatomaceous shales of Monterey series, 139
Brauns, R., on volcanic rocks of Rhenania, 124
Brewer, W. M., on zonal deposits in British Columbia, 167
Bromoform, 15
Brown, T. C., on the origin of oolites, 694
Brownell, Baker, review of book by, 315
Bucher, W. H., on the production of oolitic structure, 693

Buddington, A. F., *Coincident variations of types of mineralization and of Coast Range intrusives*, 158–179
on mineralization of Chicagof Island, 177
on the Salmon River district, 495
Buehrer, T. F., review by, 105
Buerger, M. J., and Maury, Jesse L., *Tin ores of Chocaya, Bolivia*, 1–13
Burchard, E. F., on bauxite in northeastern Mississippi, 618
Burgess, P. S., on zeolite formation, 486
Burt, F. A., review of book by, 756
Burton, W. D., on gold in the Premier ore, 505
Bushveld platinum field, 331
Butler, B. S., *Some relations between oxygen minerals and sulphur minerals in ore deposits*, 233–245
on occurrence of alunite, 19
on formation of sulphur trioxide, 39
review by, 635
Butler, B. S., and Gale, H. S., on alunite in Utah, 19, 373
Butte veins, paragenesis of minerals in, 304
Butts, Charles, review of book by, 533
Byers, C. A., on petrified wood of Arizona, 733
Bytownite, diffraction pattern, 28
experiments on, 25, 27

California petroleum, Preliminary report on the origin of (Takahashi), 133
Callahan, W. H., with Newhouse, W. H., discussion by, 629
Camborne district, 477
Camera for underground photography, 392
Campbell, J. M., on origin of Huelva ores, 603
Campbell, M. R., review of map by, 414
Campbell, William, on the microscopic examination of opaque minerals, 830
Campbell coal map of the United States (review), 414
Capillary migration, Fractionation and decomposition of petroleum during (Cook), 230
Carlton talc property, 254
Caspari, W. A., on submarine glauconite, 721
Cassiterite, 7, 12
Caves, solution and collapse, distinguished, 777
Caving to surface, successive stages, 770, 771
Cellular sponge derived from sphalerite, 429
Chalcedonic and dolomitic shales, 470
Chalcocite, 591
Chalcopyrite, 503, 587
space lattice, 58
Chalcopyrite and cubanite, intergrowths, 44
Chalcostibite, 590
Chalmersite, 45, 504
Chamot, E. M., on chemical microscopy, 832, 835
Changes in the oxidation of iron in magnetite (Twenhofel), 180; (discussion), 744
Chemical analyses—
alunite, 31
bytownite, fresh and altered, 26, 31
coal, China, 76
diatomaceous shales, 567
dolomite, 196
dunite, 331
hortonolite-dunite, 331
labradorite, 26
magnesite, 196
microcline, 31
mud, 146
native lead, 827
olivine, 323
olivine-dunite, 331
peridotites, 324
Chemische Bodenanalyse (review), 105
Chemistry in modern life (review), 411
Chemistry in the world's work (review), 316
Chile, geology and metal deposits, 531
China, mineral deposits, 222
Shensi and East Kansu, Coals of (Fuller and Clapp), 62
Chlorite, 247, 256, 264
Chlorite group of minerals, 249
Chlorophyll bodies in diatoms, 455
Chocaya, Bolivia, Tin ores of (Buerger and Maury), 1
Chroustschoff, K. von, on colloidal mixtures, 22
Cinnabar veins, Mazatzal Mountains, Arizona, 407

Clapp, C. H., on alunite in British Columbia, 20
Clapp, F. G., with Fuller, M. L., *Coals of Shensi and East Kansu, China*, 62–79
Clark, David, review of book by, 853
Clark, R. C., on geology of Kansu, China, 73
Clark, W. B., on deep wells near Wilmington, N. C., 380
Clarke, F. W., on the composition of bauxite, 480
Classification of magmatic ore deposits (Zavaritsky), 678
Clay, research on, 625
Clays, leaching experiments on, 487
"Cleavage" boxwork of limonites, 432
Clinozoisite, 260
Coal and iron in China, 416
Coal map of the United States (review), 414
Coal measures of Shansi, China, 67
Coal resources of China, 227
Coal tonnage, China, 79
Coals of Shensi and East Kansu, China (Fuller and Clapp), 62
Coast Range batholith, 166
Coast Range intrusives, 159
  mineral deposits associated with, 158
Cobalt, microchemical tests for, 837
Cockade ore, Oploca vein, Chocaya, Bolivia, 5
Cockade structure of rocks, 2
Coincident variations of types of mineralization and of Coast Range intrusives (Buddington), 158
Cole, L. H., review of book by, 108
Collapse caves, 777
Collapse dome, 776
Collins, H. F., on igneous rocks of Rio Tinto, 574
  on origin of Huelva ores, 603
Collins, J. H., on formation of kaolin, 23
  on origin of Huelva ores, 602
Collins, W. H., and Quirke, T., on origin of iron of Michipicoten, 714
Collodion, use on micro-sections, 833
Colony, R. J., on ore deposits in Manitoba, 46
Color filters for underground photography, 395
"Concentric" structure of rocks, 2
Contemporaneous deposition of minerals, 403
Cook, C. W., *Fractionation and decomposition of petroleum during capillary migration*, 230–232
Cooke, Wythe, on correlation of Cretaceous white clays of South Carolina, 379
  review of book by, 533
Copalis Beach, Washington, 357
Copper, microchemical tests for, 838
  in ore deposits, 238
  in Rio Tinto ores, 580
Corbett, C. S., on leverrierite, 34, 41
Cornish lodes, zonal arrangement of minerals in, 844
Correlation chart for Biwabik and Gunflint formations, 690
Coscinodiscus, Oregon, 568
Covellite, 591
Cretaceous white clays of South Carolina, Origin of the (Neumann), 374
Cryolite, 40
  diffraction pattern, 28
Cryptobatholithic ore deposits in Europe, 132
Crystallization differentiation deposits, 679
Crystallographic intergrowths, origin, 44
Cubanite, 45, 47
Cubanite and chalcopyrite, intergrowths, 44
Cunningham, G. M., on diatoms as source of oil, 464
Cushing, H. P., and Newland, D. H., on talc deposits of St. Lawrence County, New York, 278

Dale, T. N., on the geological history of Vermont, 252
Dall-Baranof belt, Alaska, 164
Dalmer, K., on the relation between ore deposits and intrusives, 114
Dalton, W. H., on stages in formation of petroleum from organic substances, 154
Darton, N. H., and Paige, S., on geology of Black Hills, 370
Davey, W. P., on X-ray method of analysis, 24
Davis, C. A., and Palmer, C., on diatom skeletons in peat of Dismal Swamp, 144
Davis, R. O. E., on the nature of soil compounds, 485
Davison, E. H., *Recent evidence confirming the zonal arrangement of minerals in the Cornish lodes*, 475–479

Davison, E. H.—*Continued*
on zones of Cornwall lodes, 844
Davy, W. M., on ore deposition in Bolivian tin-silver deposits, 11
Davy, W. M., and Farnham, C. M., on electrical conductivity of minerals in sections, 831
on microscopic examination of ore minerals, 8, 671
Dawson, J. M., Hanna, Marcus, and Kirby, Grady, *Igneous dikes in Bandera County, Texas*, 621–624
Day, A. L., and Allen, E. T., on hot springs and fumaroles, 245
Day, A. L., and Shepherd, E. S., on sulphur in volcanic emanations, 38
Decay of organisms, 148
De la Blache, Vidal, review of book by, 644
Del Valle, A., on iron ore deposits of Morocco, 562
Demay, A., on geology of Rio Tinto, 574
on origin of Huelva ores, 604
Denison, A. R., review by, 106
Deville, Ch. St.-C., on formation of kaolin experimentally, 23
Diagram, composition of chalcopyrite, cubanite, and pyrrhotite, 50
equilibrium diagram of pyrrhotite and pentlandite, 292
X-ray diffraction patterns of chalcopyrite and cubanite, 56
Diatom earth, Tochibori, 143
Diatom "epidemics" at Copalis Beach, Washington, and an analysis of diatom oil, Preliminary statement regarding (Becking and others), 356
Diatom oil, analysis, 366
Diatom theory of origin of petroleum, 135
Diatomaceous shales, analyses, 567
California, 137, 457
of Monterey formation, 138
Diatomite, 467
Diatoms in western Oregon shales (Schenck), 565
Diffraction patterns of silicate minerals, 28
Dikes, Igneous, in Bandera County, Texas (Dawson, Hanna, and Kirby) 621
Diller, J. S., on talc at Bald Friar, Maryland, 281; at Rowe, Massachusetts, 276
on talc deposits of California, 284
Diller, J. S.—*Continued*
on the geology of northwestern Oregon, 566
Discussion and informal communications—
Antipathy of bornite and pyrrhotite (Osborne), 99
Changes in the oxidation of iron in magnetite (Gilbert), 308; (Gruner), 744; (Wagner), 845
Doctors in geology and geography in 1927 (White), 525
Earth temperatures, buried hills, and anticlinal folds (Thom), 91
Exploring and repairing leaky artesian wells, 523
Intimate intergrowths and mutual boundaries as proof of contemporaneous deposition (Newhouse), 403
Magnesite deposits of Manchuria (Niinomy), 195
The natural gas associated with oil deposits (Stuart), 310
Note on the origin of the Rio Tinto ore bodies (Douglas), 742
Paragenesis of minerals in the Butte veins (Lindgren), 304
The phosphate deposit on Ocean Island (Owen), 632
A physico-chemical theory of metasomatism (Goldschmidt), 521
Preparation of polished sections of ores (Schwartz), 193
Successive banding around rock fragments in veins (Boydell), 94
Tourmaline-bearing cinnebar veins of the Mazatzal Mountains, Arizona (Hummel), 407
Two kinds of magnetite? (Gruner), 744; (Newhouse and Callahan), 629
The zonal arrangement of minerals in the Cornish lodes (Dunn), 844
Djebel Djerissa, geological map of, 545
view of, 546
Djebel Ouenza, geological map, 548
view of, 550
Doctors in geology, 525
Dodge talc property, 254
Doelter, C., on hydrothermal formation of silicates, 20
Dolmage, Victor, on mineralization of Vancouver Island, 177
on silver deposits of Salmon River district, 508

Dome of equilibrium in mining subsidence, 767
Doty, M. F., review of book by, 645
Douglas, G. V., discussion by, 742
Drake, N. F., on the coal resources of China, 225
Dresser, J. A., on Quebec talc deposits, 277
Ducktown, Tennessee, ore deposits, 46
Dunites, analyses, 324, 331
Dunn, J. A., discussion by, 844
Duparc, L., on platinum deposits, 322
Dussert, on the iron ore deposits of Algeria, 537
Du Toit, A. L., review of book by, 533

Earth temperature, Wyoming, 92
Earth temperatures, buried hills and anticlinal folds (discussion), 91
Eastern Magnesia Talc Company, 271
Eastman, E. D., and Evans, R. M., on oxides of iron, 241
Eastwood, T., with Whitehead, T. H., review of book by, 849
Edge, A. B., on geology of Rio Tinto, 574
on origin of Huelva ores, 604
Editorials—
Exploitation of foreign minerals (Leith), 518–520
Facts and theory in mining geology (Geijer), 300–303
Hot springs and magmatic emanations (Lindgren), 189–192
James Furman Kemp; to his memory (Lindgren), 84
A needed line of research (Ries), 625–628
Our journal (Bateman), 400–402
The pipe form of ore deposit (Wagner), 740
Primary conceptions in ore-geology (Locke), 80
Edwards, M. G., on occurrence of aluminum hydroxide in clays, 483
Eldridge, G. H., and Arnold, R., on origin of petroleum, 135
Electrical methods of prospecting, 649, 653
Electrochemical tests for opaque minerals, 671
Emerson, B. K., on serpentines in Massachusetts, 251, 252
on steatite deposits, Worcester, Massachusetts, 276
Emmons, W. H., on banded ores, 498
on oxidation subsidence, 764
Emmons, W. H.—*Continued*
on relations of metalliferous lode systems to igneous intrusives, 116
on relations of mineral deposits to environment, 178
on sericite, 19
Emmons, W. H., and Laney, F. B., on intergrowth of minerals, 404
review of book by, 640
Enargite, 589
Engler, C., on production of liquid hydrocarbon, 153
Enrichment, Rio Tinto district, 592
Enrichment of bauxite deposits through the activity of microorganisms (Thiel), 480
Eötvös gravimetric method, 649
Equilibrium diagram of pyrrhotite and pentlandite and their relations in natural occurrences (Newhouse), 288
Erdmannsdörfer, O. H., review of book by, 757
Erwin formation, 800
European ore deposits, zonal distribution, 113
Experimentation on formation of intergrowth of chalcopyrite and cubanite, 55
Experiments in fossilization, 733
Exploitation of foreign minerals, 518
Exposure in underground photography, 397

Fall belt, Virginia, 798
Famatinite, 590
Far East, mineral resources, 213
Fayol, M., on earth movements caused by mining, 768
Ferro-magnetic ferric oxide, occurrence in nature, 845
Field, John, with others, *Preliminary statement regarding the diatom "epidemics" at Copalis Beach, Washington, and an analysis of diatom oil*, 356–368
Field astronomy (review), 853
Fierro, New Mexico, magnetite ores, 46
Finlayson, A. M., on geology and ore deposits of Huelva district, 572, 578, 580
on origin of Huelva ores, 603
on talc in New Zealand, 285
Flash-light, disadvantages for underground photography, 388
Focussing in underground photography, 395

Fossilization, experiments in, 733
Fossils and other light materials, Separation by means of heavy liquids (Hanna), 14
Foundations of seismology (review), 850
Fourmarier, P., on geology of Djebel Slata and of Djebel Hamerima, 553
Fractionation and decomposition of petroleum during capillary migration (Cook), 230
Freiberg district, ore deposits, 119
Friedel, C. and G., on alteration of muscovite, 21
Fry, W. H., on microscopic determination of inorganic salts, 835
Fuchs, F., and De Launay, L., on distribution of ore deposits, 113
Fuller, Myron L., and Clapp, Frederick G., *Coals of Shensi and East Kansu, China*, 62–79
on coal resources of China, 225
Fusive deposits, 680

Galena, 589
oxidation products, 431
Galena and sphalerite, Oxidation products derived from (Boswell and Blanchard), 419
Gedroiz, K. K., review of book by, 105
Geijer, Per, *Geological relations of the North African iron ores*, 537–564
editorial, Facts and theory in mining geology, 300–303
on iron ore deposits of Kiirunavaara, 686
Gems, 641
Genesis, ore deposits Hyder district, 513
platinum metals, 353; in olivine, 322
Gentil, L., on the geology of the Tafna Basin, 556
Geographical study of coal and iron in China (review), 416
Geography, Alleghany ridges, Virginia, 811
Appalachian Plateau, Virginia, 819
Coastal Plain, Virginia, 791
Great Valley, Virginia, 801
Piedmont Plateau, Virginia, 796
Geologic maps (*see also* Maps)—
Djebel Djerissa, 545
Djebel Ouenza, 548
Rio Tinto region, 573
Geologic section, Alleghany ridges, northern Virginia, 819
Appalachian Plateau, Virginia, 822
Blue Ridge, Virginia, 800
Coastal Plain, Virginia, 793
Richmond Triassic Basin, Virginia, 798
Valley in northern Virginia, 809
Geologic thermometer, 60
Geological relations of the North African iron ores (Geijer), 537
Geology, Gunflint formation, 688
iron-ore-bearing region of North Africa, 537
platinum metals (Vogt), 321
Rio Tinto deposits, 570
Salmon River district, 495
talc deposits of Vermont, 255
Vermont, 249
Geology and metal deposits of Chile (review), 531
Geology and ore deposits of the Ducktown mining district (review), 640
Geology of Alabama (review), 533
Geology of oil, oil shales, and coal (review), 106
Geology of South Africa (review), 533
Geophysical methods, Applied, in America (Barton), 649
Geophysics, textbook (review), 752
Gestaltungsgeschichte der Erde (review), 104
Gester, G. C., on petroliferous formations of California, 462
Gilbert, Geoffrey, discussion by, 308
on bornite and pyrrhotite, 99
on formation of pyrrhotite, 240
on iron compounds in ore deposits, 236
Giles, A. W., *Oil and gas possibilities of Virginia*, 791–825
Gill, J. E., *Origin of the Gunflint iron-bearing formation*, 687–728
Gillson, J. L., *Origin of the Vermont talc deposits, with a discussion on the formation of talc in general*, 246–287
Gladeville sandstone, 821
Glauconite, 16
origin, 719
Glenrose formation, 622
Goethite, 420
Gold, in Hyder district, 504
microchemical tests for, 839
Gold Coast, British West Africa, resources, 312

Gold ore, An alunitic, in the Black Hills (Grout and Schwartz), 369
Goldschmidt, V. M., discussion by, 521
on formation of sericite, 19
Gonzalo y Tarin, J., on origin of Huelva ores, 602
Goodchild, W. H., on intergrowths in ore minerals, 44
Gordon, C. H., on stylolitic structure, 198
Gordon, S. G., on cryolite in Greenland, 40
on desilicated granite pegmatites, 280
Goroblagodat iron deposits, 683
Gossans, Rio Tinto district, 592, 613
Gould, C. N., review of book by, 315
Grabau, A. W., on minerals found in petrifactions, 729
Granodiorites, composition, 514
Graton, L. C., *Underground photography without flash-light*, 388–399
Gravimetric method of prospecting, 651
Great Valley, Virginia, 801
Greeley talc mine, Vermont, 259
Greenalite, 709
Greenalite granules, 695
Gregory, J. W., on origin of Huelva ores, 603
Grout, F. F., review by, 102
Grout, F. F., and Schwartz, G. M., *An alunitic gold ore in the Black Hills*, 369–373
Gruner, J. W., discussion by, 744
on leaching of iron, 384
on magnetite-martite-hematite, 186
on origin of Biwabik iron-bearing formation, 699, 706
on origin of iron-bearing formations, 711
review by, 641
Guild, F. N., on light-etching of minerals, 673
Gunflint formation, 688
Gunflint iron-bearing formation, Origin of (Gill), 687
Gurwitsch, Leo, review of book by, 639
Gutenberg, B., review of book by, 752, 850

Haehnel, O., on the solubility of calcium carbonate, 97
Hager, Dorsey, review of book by, 207
Hailey, Idaho, lead from, 826
Hake, B. F., on occurrences of siliceous shales in the Santa Maria Basin, California, 459
Hall, A. L., review of paper by, 414
Halmyrolysis, 692
Hammondsville talc prospect, 268
Hampton formation, 800
Handbook for prospectors (review), 206
Hanna, Marcus A., *Separation of fossils and other light materials by means of heavy liquids*, 14–17
Hanna, Marcus, with Dawson, J. W., and Kirby, Grady, *Igneous dikes in Bandera County, Texas*, 621
Harder, E. C., on formation of iron deposits, 714
Harker, Alfred, on igneous rocks of Skye, 275
Harlan formation, 821
Harrassowitz, Hermann, review of book by, 530
Harrison, J. B., on bauxite beds of British Guiana, 482
on decomposition of igneous rocks, 384
Harz ore deposits, 120
Hashimoto, Tadaichi, with others, *Preliminary statement regarding the diatom "epidemics" at Copalis Beach, Washington, and an analysis of diatom oil*, 356–368
Hatch, F. H., and Wells, A. K., review of book by, 107
Hauchecornite, 590
Hausmannite, 238
Hayes, C. W., on the physiography of the Chattanooga district, 615
Heavy liquids, Separation of fossils and other light materials by (Hanna), 14
Heiland, C. A., review by, 752
Heim, A., on talc deposits of Switzerland, 285
Hercules shale member, 458
Herdmann, W. A., on distribution of diatoms and copepods, 152
Hereza, J., on geology of Rio Tinto, 573
on Rio Tinto ores, 592
Hereza, J., and Alvarado, A. de, on origin of Huelva ores, 604
Heroy, W. B., on petroleum fields of China, 228
Hilgard, E. W., on aluminum hydroxide in soils, 483

Hillebrand, W. F., and Penfield, S. L., on alunite minerals, 27
Hilpert, S., on magnetic iron oxide, 180
Hinsdalite, 241
Hintze, Carl, on pentlandite, 290
Hitchcock, Edward, on the geology of Vermont, 249
Holde, D., on fatty matter from peat deposits, 142
Hopkins, O. B., on talc deposits of Georgia, 283
Hornblende peridotites, analyses, 324
Hortonolite-dunite, 332
  analyses, 331
Hot springs, 189
Howe, H. E., review of book by, 316
Hoyt, S. S., on principles of metallography, 61
Huelva district, see also Rio Tinto
Huelva ore deposits, 570
Hull, A. W., on X-ray method of analysis, 24
Hummel, K., discussion by, 407
  on cinnabar vein in western Germany, 407
  on electric polarization in ore deposits, 122
  on halmyrolysis, 692
  on the origin of glauconite, 720
Hungarian Erzgebirge ore deposits, 129
Hunt, E. E., review of book edited by, 757
Hussak, E., on platiniferous ores, 344
Hwa-chi sandstones, China, 64
Hwan-ho shales, China, 64
Hyder district, southeastern Alaska, Mineral deposits of the (Jewell), 494
Hydrocarbons, Biogenesis by diatoms (Tolman), 454
Hydromica, 260
Hydrothermal alteration of certain silicate minerals (Leonard), 18
Hypogene deposition, Hyder district, 501

I-chun conglomerate, China, 64
Identification of opaque minerals, Magnetic, electrochemical and photochemical tests in the (McKinstry), 669
Identification of opaque minerals, Microchemical tests in the (McKinstry), 830
Igneous dikes in Bandera County, Texas (Dawson, Hanna, and Grady), 621
Illumination for underground photography, 393
Inert gangues, 423
Infiltration, illustrations, 736
  in fossilization, 730
Inouyè, K., on the coal resources of China, 226
Insiswa platiniferous ores, 339
Intergrowth of chalcopyrite and cubanite, experimental data, 53
  of unknown minerals, 506
Intergrowth structure, explanation of, 57
Intergrowths, experimental proof of origin, 44
Intergrowths of chalcopyrite and cubanite: experimental proof of the origin of intergrowths and their bearing on the geologic thermometer (Schwartz), 44
Interior belt, Alaska, 168
Intimate intergrowths and mutual boundaries as proof of contemporaneous deposition, 403
Iron, in ore deposits, 234
  microchemical tests for, 840
Iron and silica in nature, 714
Iron compounds, formation, 242
  in ore deposits, 235
Iron reserves of China, 227

Jacobs, E. C., on talc deposits of Vermont, 247, 273
Jamesonite, 8
Japan, mineral deposits, 221
Jeune group, Vancouver Island, 99
Jewell, W. B., *Mineral deposits of the Hyder district, southeastern Alaska*, 494–517
Jones, T. D., on geological disturbances and their effect on strata temperature, 94
Jones, W. B., on bauxites in Alabama, 618
Johnson, B. L., on occurrence of chalmersite in Alaska, 47
Johnson, D. W., on history of Tennessee River, 616
Jordan, D. S., on fossil fish and their bearing on siliceous shales, 459
Juday, Chancey, on ether in diatoms, 364, 465
"Jumbled ground," 776
Juneau gold belt, Alaska, 166
Jurassic coals, China, 75

Kansu, China, coals, 73
Kaolinite, 481
Kaolinization, 19
Keith, A., on talc deposits of North Carolina, 281
Kemp, J. F., on platiniferous ores, 344
Kerogen, meaning of term, 149
Kerr, P. F., on X-ray method of analysis, 24
Kerr, P. F., and Cabeen, C. K., on electrical conductivity of ore minerals, 831
Kettner, R., on Przibram ore deposits, 124
Ki-chou limestone, China, 64
Kirby, Grady, with Dawson, J. W., and Hanna, Marcus, *Igneous dikes in Bandera County, Texas*, 621
Kitson, A. E., review of book by, 312
Klockmann, F., on igneous rocks of Rio Tinto, 574
on origin of Huelva ores, 602
Knopf, Adolph, on banded structures, 94
on mineralization in the Eagle River region, 177
Knowlton, F. H., on fossil wood, 729
Kober, L., review of book by, 104
Königsberger, J., on the polarizing microscope, 831
Kraemer, G., and Spilker, A., on diatomaceous theory of origin of petroleum, 142
Krusch, P., on lodes of Siegerland, 126
on relations of fluobaritic veins, 119
Kuiu-Heceta belt, Alaska, 164
Kunz, G. F., on platiniferous ores, 344

Labradorite, experiments on, 25
Ladd, G. E., on origin of clays, 380
LaForge, L., and Phalen, W. C., on the age of granites in Georgia, 282
Lake Superior iron-bearing formations, origin, 712
Lamprophyre dikes, Alaska, 159
Laney, F. B., on intergrowths of ore minerals, 44
with Emmons, W. H., review of book by, 640
Larsen, E. S., on alunite in Colorado, 20
Larsen, E. S., and Wells, R. C., on hinsdalite, 239
Larsen, E. S., and Wherry, on leverrierite, 37
Las Animas tin-silver vein, Chocaya, Bolivia, 2, 8
Laterite (review), 530
Laterites, 482
Lateritic iron ores, 220
Launay, L. de, on origin of Huelva ores, 602
Lausen, Carl, on cinnabar veins, Arizona, 407
Lawson, A. C., on asphaltum deposits in California, 134
on diatoms as source of oil, 464
Leached outcrops as guides to copper ore (reviews), 635
Leaching experiments on clays, 487
Lead, in ore deposits, 238
microchemical tests for, 840
native, chemical analysis, 827
Lead ore consisting of native lead, leadhillite and lithargite (Shannon), 826
Leadhillite, 826
Lee formation, 820
Lehmann, O., on globular forms developed in precipitates, 693
Leith, C. K., editorial, Exploitation of foreign minerals, 518–520
on glauconite, 709
on greenalite granules, 697
on the mineral resources of the Far East, 219
Lekene, 142
Lemberg, J., on replacement and transformation of minerals, 21
Lens for underground photography, 391
Leonard, R. J., *The hydrothermal alteration of certain silicate minerals*, 18–43
review by, 530
Leptochlorites, 723
Leverrierite, 34
Lherzolites, analyses, 324
Light-etching of minerals, 673
Limonites, 420
Limonitic jasper, 420
derived from sphalerite, 428
Lindgren, Waldemar, discussion by, 304
editorial, Hot springs and magmatic emanations, 189–102
editorial, James Furman Kemp; to his memory, 84–90
on mineralization of Pacific coast region, 169
on occurrence of alunite, 20
on oxidation subsidence in Tintic district, 764

Lindgren, Waldemar—*Continued*
on the tin and silver district of Chocaya, 1
review of book by, 200
Lindgren, W., and Davy, W. M., on pentlandite in Nevada, 298
Link, G., on formation of oolite, 693
Liquation deposits, 678, 681
Lithargite, 826
Little, James M., review of book by, 531
Liversidge, A., on magnetic iron oxide, 180
Locke, Augustus, editorial, Primary conceptions in ore-geology, 80–84
review of book by, 635
Locke, A., Hall, D. A., and Short, M. N., on mutual boundary relation of minerals, 405
Logan, W. N., on reactions of iron with aluminum sulphate, 491
Lo-ho sandstone, China, 64
Longwell, C. R., review by, 315
Lossen, K. A., on the relation between ore deposits and intrusives, 114
Louderback, G. D., on origin of diatomaceous shales of Monterey series, 139
on thickness of diatomaceous earth of Truckee, 151
Loughlin, G. F., on alunite in Utah, 19
Lydenburg chromite deposits, percentage of platinum in, 334
Lydenburg platinum deposits, 331

Mabery, C. F., on Californian oil, 140
McCann, W. S., on mineralization in the Bridge River area, 178
McGeorge, W. T., on aluminum hydroxide, 486
McKinstry, H. E., *Magnetic, electrochemical and photochemical tests in the identification of opaque minerals*, 669–677
Microchemical tests in the identification of opaque minerals, 830–843
McMillin, H. C., with others, *Preliminary statement regarding the diatom "epidemics" at Copalis Beach, Washington, and an analysis of diatom oil*, 356–368
Maghemite, 846
Magistad, O. C., on the aluminum content of the soil solution, 484
Magmatic emanations, 189
Magmatic ore deposits, Classification of (Zavaritsky), 678
Magnesite, analyses, 196
Magnesite deposits of Manchuria, 195
Magnet made from eye of needle, 670
Magnetic, electrochemical and photochemical tests in the identification of opaque minerals (McKinstry), 669
Magnetic method of prospecting, 651
Magnetism, testing for, 669
Magnetite, Changes in the oxidation of iron in (Twenhofel), 180
Magnetite, oxidized, 629
Magnetometric methods of prospecting, 649, 654
Maier, C. G., and Van Arsdale, G. D., on copper-smelting stages, 236
Malaguti, F., on magnetic iron oxide, 180
Malcolmson, J. W., on oxidation subsidence, Sierra Mojada, Mexico, 763
Manchuria, magnesite deposits, 195
Manganese, in ore deposits, 237
microchemical tests for, 841
Manganese deposits, near Postmasburg (review), 414
Mann, A., on oil globules in diatoms, 465
Maps (*see also* Geologic maps)—
Batholiths and ore deposits of central Europe, 114; of the Saxon Erzgebirge, 116
Bauxite deposits of southern Appalachians and adjacent Coastal Plain, 617
Central Texas region, 622
China and United States superposed, 223
Coals in North Shensi Basin, China, 66
Coast Range intrusives, southeastern Alaska, 160
Copalis Beach, Washington, region, 357
Distribution of Gunflint formation, 688
Mineral deposits of South America (review), 412
North African iron ore deposits, 539
Northeastern China, 63
Ouenza-Djerissa region, showing distribution of Aptian, 543
Physiographic provinces of Virginia, 792
Rattlesnake Jack mine, location, 369
South Carolina white clay belt, 374

Maps—*Continued*
Ural platinum deposits, 327
Vermont talc deposits, 253
Zaccar ore body, 555
Marginal cracks in mining subsidence, 768
Massachusetts, talc deposits, 276
Matildite, 8
Maury, J. L., with Buerger, M. J., *Tin ores of Chocaya, Bolivia*, 1–13
Mead, W. J., on bauxite deposits of Arkansas, 482, 620
Mellor, J. W., on aluminum hydroxides, 480
Merensky type of platiniferous ores, 340, 355
Mertie, J. B., on mineralization of Admiralty Island, 177
on palladium-bearing bornite deposit, Alaska, 162
Merwin, H. E., et al., on identity of cubanite and chalmersite, 45
Metcalf, H. C., review of book compiled by, 853
Metallogenetischen Epochen und Gebiet von Siberian (review), 409
Metallographic researches (review), 205
Metasomatism, physico-chemical theory of, 521
Meunier, S. A., on platinum deposits, 322
Michel, H., review of book by, 641
Microchemical tests in the identification of opaque minerals (McKinstry), 830
Microcline, diffraction pattern, 28
experiments on, 25, 27
Middendorf formation, 379
Miller, Loye, on fossil birds and their bearing on siliceous shales, 460
Milner, H. B., review of book by, 204
Mineral deposition in Cornish lodes, time scale of, 844
Mineral deposits associated with Coast Range intrusives, 158
Mineral deposits of the Hyder district, southeastern Alaska (Jewell), 494
Mineralization, Huelva deposits, 584
Mineralogy of high and low temperature deposits, 242
Minerals in relation to possible development in the Far East (Bain), 213
Minerals found as petrifying agents, 729
Minerals—*Continued*
produced by hydrothermal experiments, 22
Mines handbook (review), 415
Mining geology, facts and theory in, 300
Mining subsidence distinguished from oxidation subsidence, 766
Missisquoi group, 260
Modelo formation, 458
Monterey formation, 133
Moreton talc deposit, Vermont, 268
Morey, G. W., and Niggli, P., on hydrothermal formation of silicates, 21
Morocco iron ores, production, 540
Morphogeny of the earth, 104
Mud, bottom, of Shiogama Bay, 144
chemical composition, 146
Murray, John, on optimum diatom development, 364
on the red clays, 718
Muscovite, 260
Mutual boundaries, definition of, 304

Native lead, chemical analysis, 827
Native lead, leadhillite and lithargite, A lead ore consisting of (Shannon), 826
Natural gas associated with oil deposits, 310
Neale, W. G., review of book by, 415
Neumann, F. R., *Origin of the Cretaceous white clays of South Carolina*, 374–387
Newhouse, W. H., *The equilibrium diagram of pyrrhotite and pentlandite and their relations in natural occurrences*, 288–299
informal communication by, 403
on intergrowth of minerals, 51, 59
Newhouse, W. H., and Callahan, W. H., discussion by, 629
Nickel, microchemical tests for, 841
Nickel-copper lodes, Alaska, 160
Niggli, P., on banded structures, 95
on distinction between plutonic and volcanic types of ores, 130
Niinomy, K., discussion by, 195
Nishihara, H., on magnesite in Manchuria, 199
North African iron ores, Geological relations of the (Geijer), 537
North Shensi Basin, stratigraphy, 63
Norton formation, 821
Norylsk district, Siberia, 339
Notes and news, Scientific (see Scientific notes and news)

Norwegian platinum deposits, 336

Obrutschew, W. A., review of book by, 409
Oden, S., on humic acids, 148
Oil, in diatoms, 366
  Powell Valley, Virginia, 810
  produced by distillation by superheated steam, 155
Oil and gas possibilities of Virginia (Giles), 791
Oil field geology (review), 207
Oiseau River district, Manitoba, ore deposits, 46
Oklahoma, stratigraphy, 313
Olivine, analyses, 323
Olivine-dunite, 331
  analyses, 331
Onverwacht type of platinum deposits, 331, 354
Opal silt and opal shale, 468
Opaque minerals, Magnetic, electrochemical and photochemical tests in the identification of (McKinstry), 669
Opaque minerals, Microchemical tests in the identification of (McKinstry), 830
Oploca tin-silver vein, Chocaya, Bolivia, 2
Ordos region, China, coals, 74
Ore deposits, magmatic, Classification of (Zavaritsky), 678
Ore deposits in central Europe, Zonal distribution (Berg), 113
Ore deposits of Jerome and Bradshaw Mountains quadrangles (review), 200
Ore deposits of the Rio Tinto (Huelva) district, Spain (Bateman), 569
Oregon shales, Diatoms in western (Schenck), 565
Ores, polished sections, 193
Organic opal sediments of California, 466
Origin, Biwabik and Gunflint formations, 709, 726
  crystallographic intergrowths, 44
  diatomaceous shales of Monterey formation, 139
  glauconite, 719
  Huelva ores, 570, 602, 605, 613
  iron ore deposits of North Africa, 557
  iron-bearing formations, 712
  pyrrhotite-pentlandite relations in nature, 295, 297
Origin—*Continued*
  Rio Tinto ore bodies, 742
  tin ores of Chocaya, Bolivia, 10
  Vermont talc, 274
  white clays of South Carolina, 380
Origin of California petroleum, Preliminary report on the (Takahashi), 133
Origin of the Cretaceous white clays of South Carolina (Neumann), 374
Origin of the Gunflint iron-bearing formation (Gill), 687
Origin of the Vermont talc deposits (Gillson), 246
Osborne, Freleigh F., discussion, Antipathy of bornite and pyrrhotite, 99–101
  reviews by, 205, 750
Otsuka, S., on Nishiyama oil fields, Japan, 137
Ouenza iron ore, 542
Owen, L., discussion by, 632
Oxidation by air-water processes, 444
  of iron in magnetite, 308
  Rio Tinto district, 592
Oxidation of iron in magnetite, Changes in the (Twenhofel), 180; discussion, 308, 845
Oxidation products derived from sphalerite and galena (Boswell and Blanchard), 419
Oxidation subsidence, field appearance at Bisbee, 779
  literature on, 763
Oxidation subsidence at Bisbee, Arizona (Wisser), 761
Oxygen minerals and sulphur minerals, Some relations between (Butler), 233
Ozokerite, 142

Pacific mineral belt, 171
Pack, R. W., on diatoms as source of oil, 464
  on origin of oil in Sunset-Midway fields, 135
  on origin of petroleum in Sunset-Midway field, 139
Palache, C., on chalmersite, 51
Palladium, absence in Ural platinum deposits, 335
  in nickel ores, 338
Palladium-bearing bornite deposit, Alaska, 162
Palmer, Chase, on California oil, 140
  on composition of river waters, 715

Paragenesis of minerals, in the Butte veins, 304
in Hyder district, 512
in talc, 256
in tin ore, Bolivia, 6
Park, J., review of book by, 643
Parker mine, Aiken County, South Carolina, 377
Parry Sound, Ontario, ore deposits, 46
Peck, F. B., on talc deposits of Easton, Pennsylvania, 280
Peckham, S. F., on origin of California petroleum, 140
Pegmatite dikes, Alaska, 159
Peneplain at Rio Tinto, 576
Pentlandite, artificial, 290
Pentlandite and pyrrhotite, The equilibrium diagram and their relations in natural occurrences (Newhouse), 288
Peridotites, analyses, 324
Periods of intrusive activity, central Europe, 115
Permo-Carboniferous coals, China, 67
Pervinquière, L., on the geology of Tunis, 542
Petrifaction of vegetable tissue, 729
Petrified wood, Replacement vs. impregnation in (St. John), 729
Petroleum, in China, 228
stages in formation from organic substances, 154
theories of origin based on chemical investigations, 140
Petroleum, California, Preliminary report on the origin of (Takahashi), 133
Petroleum, fractionation and decomposition during capillary migration (Cook), 230
Petrology of the igneous rocks (review), 107
Philippine Islands, mineral deposits, 220
Phillips, J. A., on gossans of Rio Tinto district, 592
Phoenician mining at Rio Tinto, 576
Phosphate deposit on Ocean Island, 632
Photography, Underground, without a flash-light (Graton), 388
Photomicrographs, chalcocite-cubanite intergrowths, 48
concentric supergene marcasite replacing pyrrhotite, 510
diatomite, 474
greenalite granules, 696, 698
Photomicrographs—*Continued*
Gunflint rocks, 701, 704
Huelva ores, 588, 598–600, 608
magnetite and pyrrhotite in grit, Vermont, 265
primary pyrite and chalcopyrite, 588
pyrrhotite and magnetite replacing talc, 258
siliceous phase of Ouenza ore, 542
talc pseudomorphs, 267
tin ore, Bolivia, 5
tuffaceous shale containing fragments of marine diatoms, 565, 566
Physico-chemical geology (review), 750
Physiographic provinces of Virginia, map, 792
Piedmont Plateau, Virginia, 796
Pipe form of ore deposit, 740
Pirsson, L. V., review of book by, 102
Plan, surface at Bisbee, Arizona, 782
Plates and films for underground photography, 394
Platinum, native, 354
prices, 351
Platinum deposits, Norway, 336
Platinum metals, in quartz veins, 347
melting points, 326
relative distribution, 348
Platinum metals, Geology of the (Vogt), 321
Plutonic type of ore deposits, 130
Pohle, on the water of rivers of northern Russia, 716
Polished sections of ores, 193
Poor, R. S., reviews by, 204, 847
Posnjak, E., and Merwin, H. E., on hydrated ferric oxides, 420
Potonie, H., on so-called diatomecous deposits, 142
Powell Valley, Virginia, deep well, 810
Practical oil field geology (review), 207
Pratt, J. H., on talc deposits of North Carolina, 282, 283
Precious stones, 641
Preliminary report on the origin of California petroleum (Takahashi), 133
Preliminary statement regarding the diatom "epidemics" at Copalis Beach, Washington, and an analysis of diatom oil (Becking and others), 356
Preparation of polished sections of ores, 193

Preparation of samples for sedimentary analysis, 14
Price, W. A., review by, 755
Prince of Wales-Chichagof belt, Alaska, 164
Prince William Sound, Alaska, copper deposits, 47
Principles of petrology (review), 847
Przibram, Bohemia, ore deposits, 124
Puente shale, 458
Pu-hsien sandstone and shale, 64
Pyrite, 502, 587
Pyritic deposits, Huelva district, 576
Pyrrhotite, 50, 240
  artificial, 291
Pyrrhotite and bornite in association, 99
Pyrrhotite and pentlandite, The equilibrium diagram and their relations in natural occurrences (Newhouse), 288
Pyrrhotite-pentlandite relations in nature, 295

Quebec talc deposits, 277
Quiring, H., on the lodes of Siegerland, 126

Rae, C. C., on origin of petroleum, 148
Rambler mine, Wyoming, platinum, 344
Ramdohr, Paul, on magnetite, 308
  on occurrence of chalmersite, 45
Rapid neutralizers, 438
Ransome, F. L., on formation of alunite, 20
  on formation of sulphuric acid in nature, 39
  on oxidation subsidence at Bisbee, Arizona, 763
  reviews by, 104, 312, 409, 534, 849
Rastall, R. H., on relations of mineralization to magmas, 179
  on zonal distribution of ore deposits, 113
  review of book by, 750
Rattlesnake Jack mine, South Dakota, 369
Ray, J. C., on intergrowths in ore minerals, 44
Read, T. T., on mineral resources of China, 225
Recent evidence confirming the zonal arrangement of minerals in the Cornish lodes (Davison), 475
Reger, D. B., review of book by, 645
Reid, J. A., on mineralization in the Mother Lode district, 178
Rejuvenation in ore deposits, 132
Renard, A. F., on deep sea deposits, 719
Replacement by oxidation products, 406
  of minerals, 405
  partial, in pseudomorphs, 405
Replacement origin of Huelva ores, 570, 607
Replacement vs. impregnation in petrified wood (St. John), 729
Research, needed, 625
Rettger, R. E., on bauxites of southeastern Alabama, 619
Reviews—
  Campbell coal map of the United States (Campbell), Bateman, 414
  Chemische Bodenanalyse (Gedroiz), Buehrer, 105
  Chemistry in modern life (Arrhenius), Bateman, 411
  Chemistry in the world's work (Howe), 316
  Field astronomy for engineers and surveyors (Clark), Bayley, 853
  A geographical study of coal and iron in China (Smith), Bateman, 416
  The geology and metal deposits of Chile (Little), Agar, 531
  Geology and ore deposits of the Ducktown mining district (Emmons and Laney), Bateman, 640
  Geology of Alabama (Adams and others), Schuchert, 533
  The geology of oil, oil shales, and coal (Stuart), Denison, 106
  Geology of South Africa (Du Toit), Bateman, 533
  The geology of the southern part of the South Stafford coal field (south of Bently faults) (Whitehead and Eastwood), Ransome, 849
  Gestaltungsgeschichte der Erde (Kober), Ransome, 104
  Grundlagen der Erdbebenkunde (Gutenberg), Rose, 850
  Grundlagen der Petrographie (Erdmannsdörfer), B., 757
  Grundzüge der praktischen Bodenkunde (Stremme), Shaw, 851
  Handbook for prospectors (von Bernewitz), Bateman, 206
  Index to the stratigraphy of Oklahoma (Gould), Poor, 315

Reviews—*Continued*
Kleine geologische Karte von Europa and Tektonisches Bild von Europa (Beyschlag and Schrieb), Ransome, 534
Die künstlichen Edelsteine (Michel), Gruner, 641
Laterit, Material und Versuch erdgeschichtlicher Auswertung (Harrassowitz), Leonard, 530
Leached outcrops as guides to copper ore (Locke), Butler, 635
Lehrbuch der Geophysik (Textbook of geophysics) (Gutenberg), Heiland, 752
Linking science and industry (Metcalf), 853
Manganese deposits near Postmasburg, west of Kimberley (Hall), Behre, 414
Map of the mineral deposits of South America (Stappenbeck), Singewald, 412
Die metallogenetischen Epochen und Gebiete von Siberian (Obrutschew), Ransome, 409
Metallographic researches (Benedicks), Osborne, 205
Mikroskopische Physiographie der Mineralien und Gesteine (Wülfing-Rosenbusch), Bayley, 645
The mines handbook (Neale), Bateman, 415
The new universe—an outline of the world in which we live (Brownell), Bateman, 315
Ore deposits of the Jerome and Bradshaw Mountains quadrangles (Lindgren), Singewald, 200
Outlines of the mineral and water-power resources of the Gold Coast, British West Africa, with hints on prospecting (Kitson), Ransome, 312
The petrology of the igneous rocks (Hatch and Wells), Agar, 107
Physico-chemical geology (Rastall), Osborne, 750
Practical oil field geology (Hager), Bateman, 207
Principles of human geography (de la Blache), Binney, 644
The principles of petrology (Tyrrell), Poor, 847
Rocks and rock minerals (Pirsson), Grout, 102
The scientific principles of petroleum technology (Gurwitsch), Russell, 639

Reviews—*Continued*
Selenium, a list of references (Doty), 645
Sodium sulphate of western Canada, its occurrence, uses, and technology (Cole), 108
Soil and civilization (Whitney), Bateman, 534
Soil mineralogy (Burt), B., 756
Supplement to an introduction to sedimentary petrography (Milner), Poor, 204
A textbook of mining geology; with sections on mine examination and the geology of petroleum (Park), Agar, 643
Treatise on sedimentation (Twenhofel and others), Longwell, 313
What duty to support the surface does a subsurface owner owe? (Bosworth), Price, 755
What the Coal Commission found (Hunt), 757
West Virginia Geological Survey; Mercer, Monroe, and Summers Counties (Reger), 645
Reyer, E., on the relation between ore deposits and intrusives, 114
Richardson, C. H., on the geology of Bethel, Vermont, 250
Richardson, C. H., and Cabeen, C. K., on the geology of Randolph, Vermont, 251
Ries, H., editorial, A needed line of research, 625–628
and others, on composition of South Carolina clays, 383
Rio Tinto, changing colors of, 593
Rio Tinto district, physiographic history, 594
Rio Tinto (Huelva) district, Spain, Ore deposits of the (Bateman), 569
Rio Tinto mines, production, 577
Rio Tinto ore bodies, origin, 742
Rio Tinto ore deposits, characters, 578
Rio Tinto region, geological map, 573
Robbins, J., on magnetic peroxide of iron, 180
Roberts, H. M., and Longyear, R. D., on Sudbury nickel deposits, 296
Robinson, W. O., and McCaughey, W. J., on the color of soils, 383
Rock belts, Alaska, 164
Rocks and rock minerals (review), 102

Römer, Ferd., on origin of Huelva ores, 602
Rogers, A. F., on intergrowths in ore minerals, 44
on minerals found in petrifactions, 729
on pseudomorphs of talc, 284
Rogers, G. S., on Californian oil, 140
Rose, H. W., review by, 850
Ross, C. S., on nephelite-hauynite alnoite, 240
on preparation of sedimentary materials for study, 14
Roth, J., on silica content of diatomaceous shales, 567
Rothpletz, A., on production of certain bitumens, 153
Russell, W. L., review by, 639

St. John, Ruth N., *Replacement vs. impregnation in petrified wood*, 729–739
Salmon River district, geology, 495
Salt Chuck mine, Alaska, 345
Samples, preparation for analyses, 14
Sampson, Edward, on the determination of anisotropism in metallic minerals, 831
Santa Maria district, California, 467
Saxonites, analyses, 324
Schade, H., on colloidal formation of concretions, 693
Schaller, W. T., on test for alunite, 373
Schenck, H. G., *Diatoms in western Oregon shales*, 565–568
on diatomaceous shales interbedded with arkose, 460
Scheumann, on subdivision of silicate igneous rocks, 678
Schmidt, C., and Preiswerk, H., on origin of Huelva ores, 602
Schneiderhöhn, H., on distinction between plutonic and volcanic types of ores, 130
on intergrowths in ore minerals, 44, 51, 59
on microscopic examination of ore minerals, 671
on pyrrhotite-pentlandite relations, 297
Schofield, S. J., on metallization in belts in British Columbia, 171
Schofield, S. J., and Hanson, George, on the Salmon River district, 495
Schrieb, W., with Beyschlag, E., review of map by, 534
Schuette, H. A., analysis of fresh water plankton, 368
Schwartz, G. M., *Intergrowths of chalcopyrite and cubanite: experimental proof of the origin of intergrowths and their bearing on the geologic thermometer*, 44–61
discussion by, 193
on chalcopyrite at Parry Sound, Ontario, 47
on chalmersite, 44
on intergrowths of chalcopyrite and cubanite, 504
Schwartz, G. M., with Grout, F. F., *An alunitic gold ore in the Black Hills*, 369–373
Schwarz, R., on the formation of kaolin, 481
Scientific notes and news, 110, 209, 317, 417, 535, 647, 758, 854
Secondary enrichment, Rio Tinto district, 506
Secondary marginal cracks, 774
Section, Appalachian peneplanes, 616
calcified wood, 737
Camborne sewerage tunnel, 477
Cretaceous white clays, South Carolina, 375
Djerissa iron ore deposit, 547
silicified wood, 735, 738
Sedimentary analysis, 14
Sedimentary conditions of South Carolina white clays, 385
Sedimentary petrography (review), 204
Sedimentation, treatise on, 313
Segall, Julius, on intergrowths in ore minerals, 44
Seismic method of prospecting, 652
Selenium; a list of references (review), 645
Separation of fossils and other light materials by means of heavy liquids (Hanna), 14
Sericite, 19
Sericitization, 19
at Huelva deposits, 581
Serpentine, Vermont, 251
Serpentine group of minerals, 249
Shannon, E. V., *A lead ore consisting of native lead, leadhillite and lithargite*, 826–829
on sulphides of iron, 237
on talc at Mineral Hill mine, Maryland, 281
Shansi coal measures, China, 64
Shansi-Shensi coal fields, China, 226
Shaw, C. F., review by, 851

Shensi, China, coals, 68, 70
Shensi and East Kansu, China, Coals of (Fuller and Clapp), 62
Shen-si sandstones, China, 64
Sherer, H. K., on bauxite deposits of the Coastal Plains, 619
Shiogama Bay, bottom mud, 144
Short, M. N., on polished sections of ores, 831
Siberia, geology and ore deposition, 409
Siegerland, Germany, ore deposits, 125
Sierra Morena mountains, 572
Silesian ore deposits, 122
Silicate minerals, The hydrothermal alteration of certain (Leonard), 18
Silver, microchemical tests for, 842
Singewald, J. T., Jr., on intergrowths in ore minerals, 44
reviews by, 200, 412
Sloan, E., on origin of white clays, 380
Smith, W. D., on mineral resources of the Philippine Islands, 219
Smith, Wilfred, review of book by, 416
Smyth, C. H., Jr., on iron ores of primary origin, 722
on talc deposits of New York, 257, 278
Spencer, A. C., on mineralization of Douglas Island, 177
Sphalerite, 503, 589
Sphalerite and galena, Oxidation products derived from (Boswell and Blanchard), 419
Sphalerite oxidation products, 424
Spherites, 703
Spodumene, experiments on, 25
Spurr, J. E., on banded structures, 94
on greenalite granules, 697
on relations of mineralization to magmas, 179
Society of Economic Geologists, 109, 208, 646
Sodium sulphate of western Canada (review), 108
Soil and civilization (review), 534
Soil mineralogy (review), 756
Soils, 851
Solution caves, 777
Some relations between oxygen minerals and sulphur minerals in ore deposits (Butler), 233
Sosman, R. B., and Posnjak, E., on ferromagnetic ferric oxide, 180, 629
South Africa, geology, 533
South America, mineral deposits, map, 412
Sowerby, A. C., on coal from Ningshia, China, 73
Staffordshire coal field, 849
Stahl, A. F., on diatomaceous theory of origin of petroleum, 142
Stalder, Walter, on diatoms as source of oil, 464
Stannite, 7
Stappenbeck, R., review of map by, 412
Stelzner, A. W., on origin of Huelva ores, 602
on tin ores of Bolivia, 10
Stephenson, E. A., on hydrothermal alteration, 21
Stephenson, L. W., on a deep well at Charleston, S. C., 380
review of book by, 533
Stickney, A. W., on oxidation subsidence at Kyshtim, Russia, 764
Stockdale, P. B., on stylolitic structure, 198
Stopes, M., on fossilization in woods, 732
Stratigraphy, Alleghany ridges, Virginia, 812
Appalachian Plateau, Virginia, 820
Coastal Plain, Virginia, 793
North Shensi Basin, 63
Piedmont Plateau, Virginia, 796
Santa Maria district, California, 459
western Virginia, 803
Stratigraphy of Oklahoma (review), 315
Stremme, H., review of book by, 851
Stuart, Murray, discussion by, 310
review of book by, 106
Stutzer, O., on iron ore deposits of Kiruna, 685
Structure, Alleghany ridges, Virginia, 815
Appalachian Plateau, Virginia, 821
Coastal Plain, Virginia, 793
North Shensi Basin, 64
Piedmont Plateau, Virginia, 796
western Virginia, 804
Subsidence, Oxidation, at Bisbee, Arizona (Wisser), 761
Successive banding around rock fragments in veins, 94
Sudbury ores, platinum in, 337

Sudbury-Erteli type of platiniferous ores, 336, 354
Sulphuric acid, formation in nature, 39
Sulphides, mixed, oxidation of, 440
Sulphur in ore deposits, 239
Sulphur minerals and oxygen minerals, Some relations between (Butler), 233
Supergene deposits, 243
Supergene deposition, Hyder district, 508
Synedra nitchioides, 362
Syntectic liquation deposits, 682

Tabelman, H. A., and Potter, J. A., on reduction of ferric solutions, 241
Tables—
analyses of hortonolite-dunite, 331; of olivine, 323; of olivine-dunite, 331; of peridotites, 324; of salts extracted from muds, 145, 146; of samples of diatomaceous shales, 567
average analyses of sediments and igneous rocks, 718
coal resources of China, 227
comparison of Texas granodiorite with the granodiorites of the main Coast Range batholith, 514
composition of Coast Range intrusives, 168
formations of western Virginia, 802–3
geophysical instruments in use by American oil and mining companies, 656
hydrothermal alteration of silicate minerals, 25–37
iron and silica in river waters, 716
lower Paleozoic of middle-western Virginia, 806; of northwestern Virginia, 805; of southwestern Virginia, 807–8
melting points of the platinum metals, 326
mineral distribution in veins of Hyder district, 499, 500
minerals of sands and sandy clays, South Carolina, 378
percentage of "silica" soluble in alkali, 146
platinum, prices, 351
production of platinum and gold, 350
relation of oxygen compounds to sulphur compounds in ore deposits, 234
Tables—*Continued*
relative solubility of silica and alumina in the presence and in the absence of bacterial activity, 490
sequence of crystallization in Coast Range ore deposits, 173
silica-alumina ratios at various depths in Arkansas bauxite deposits, 483
temperature data for equilibrium diagram of pyrrhotite and pentlandite, 293
upper Paleozoic formations, middle-western Virginia, 815–6; northwestern Virginia, 813–4; southwestern Virginia, 817–8
zones of Cornish lodes according to different authors, 475
Tai-yuan-fu coal measures, China, 67
Takahashi, J. R., *Preliminary report on the origin of California petroleum*, 133–157
on origin of California petroleum, 359
on the oil fields of Japan, 137
Talc, formation, 246
Talc deposits, Appalachian States, 279
California, 284
Georgia, 283
Massachusetts, 276
New York, St. Lawrence County, 278
Pennsylvania, Easton, 280
Quebec, 277
Switzerland, 285
Uruguay, 285
Talc deposits, Origin of the Vermont (Gillson), 246
Talmage, S. B., on color-comparison determination of minerals, 831
on the quantitative measurement of hardness of minerals, 831
Tarr, W. A., on the formation of oolite, 693
Tate, J. L., on trap-rock dike in Bandera County, Texas, 621
Teas, L. F., on intergrowths in ore minerals, 44
Tegengren, F. R., on the iron ore resources of China, 225
Tellurium, microchemical tests for, 843
Temperature controlling differentiation of metalliferous solutions, 174
Tequipis sandstone, 458
Termier, P., on leverrierite, 37
Tetrahedrite, 9, 504, 589

Texas granodiorite, 495, 514
Textures common in normal sediments of Gunflint formation, 691
of Gunflint formation due to colloidal phenomena, 692
Thiel, G. A., *The enrichment of bauxite deposits through the activity of microörganisms*, 480–493
Thiessen, R., on oil in Elaeophyton, 474
on organisms containing oil, 360
Thom, W. T., Jr., discussion, Earth temperatures, buried hills, and anticlinal folds, 91
Thugutt, St. J., on transformation of kaolin, 21
Tientou phase of Shensi formation, China, 75
Tin in ore deposits, 238
Tin ores of Chocaya, Bolivia (Buerger and Maury), 1
Ting, V. K., on mineral resources of China, 225
Tolman, C. F., *Biogenesis of hydrocarbons by diatoms*, 454–474
Tolman, C. F., with others, *Preliminary statement regarding the diatom "epidemics" at Copalis Beach, Washington, and an analysis of diatom oil*, 356–368
Tourmaline-bearing cinnabar veins of the Mazatzal Mountains, Arizona, 407
Treatise on sedimentation (review), 313
Triassic basins, Virginia, 797
Tunell, George, note by, 438
Tung-chuan quartzite, China, 64
Tungsten in ore deposits, 238
Turner, H. W., on mineralization in the Mother Lode district, 178
Twenhofel, L. H., *Changes in the oxidation of iron in magnetite*, 180–188; discussion, 308, 845
Twenhofel, W. H., and collaborators, review of book by, 313
Two kinds of magnetite? (discussion), 744
Tyrrell, G. W., review of book by, 847

Uglow, W. L., on mineralization of Vancouver Island, 177
on the ores of the Slocan district, 498
Uixan iron ore deposits, 559, 561
Ullmannite, 590
Unicoi formation, 800
Underground photography without flash-light (Graton), 388
Ural platinum deposits, 326
Ural type of platinum deposits, 354

Vaalkop platiniferous ores, 342, 355
Van Arsdale, G. D., on pyrrhotite, 240
Van der Veen, R. W., on banded structures, 94
on intergrowths in ore minerals, 44, 51, 59
on the relations of pyrrhotite and pentlandite in nature, 295, 297
Van Heurck, H., on Aulacodiscus, 361
Van Hise, C. R., and Leith, C. K., on origin of iron-bearing formations, 710
on the formation of greenalite, 694
Vaughan, T. W., on the formation of oolite, 693
Veatch, O., on origin of white clays of South Carolina, 380
Vegetable tissue, condition at time of petrifaction, 730
Verde antique, 251, 259
Verde antique quarry, Rochester, Vermont, 266
Vermilion ore, Sudbury district, 338
Vermont, geological history, 252
Vermont talc deposits, Origin of the (Gillson), 246
Virginia, Oil and gas possibilities of (Giles), 791
Vitreous opal, 469
Vogel, H., on the lodes of Rhenania, 124
Vogt, J. H. L., *Geology of the platinum metals*, 321–355
on ore desposits formed by magmatic differentiation, 678
on origin of Huelva ores, 602
on production of Rio Tinto mines, 577
Volcanic type of ore deposits, 130
Von Bernewitz, M. W., review of book by, 206
Vysockij, N., on platiniferous deposits, 339
Vyssokaya Gora iron deposits, 682

Wade, W. R., and Wandke, A., on zinc deposits of St. Lawrence County, New York, 279
Wagner, G., on stylolitic structure, 198

Wagner, P. A., editorial, The pipe form of ore deposit, 740–741
discussion by, 845
on Transvaal platinum deposits, 321
Wagner, P. A., and Mellor, E. T., on Transvaal platinum deposits, 321
Wakeman and Joffe, on microörganisms concerned in the oxidation of sulphur, 492
Waldschmidt, W. A., on the ores of the Coeur d'Alene district, 498
Walker, T. L., on pentlandite, 298
Walther, K., on talc lenses in Uruguay, 285
Wandke, A., on experiments on intergrowth, 60
Wandke, A., and Hoffman, R., on sequence of minerals in Sudbury deposits, 173
Wang, C. C., on stratigraphy of Paotehchow, China, 69, 76
Wang, C. Y., on mineral resources of China, 225
Warren, C. H., on crystallization of minerals, 51
Washburne, C. W., on terms ulmohumic and kerogen, 148
Washington, H. S., on iron compounds in the earth, 236
Waterburg district, Transvaal, platinum deposits, 344, 347
Waterbury talc mine, Vermont, 271
Watson, T. L., on a covering of bauxite deposits, 481
on bauxite deposits of Georgia, 616
on granites of southeastern States, 382
on talc in Virginia, 281
Weinschenck, E., on talc deposits of Austrian Alps, 285
Wells, A. K., with Hatch, F. H., review of book by, 107
Wells, R. C., on sulphur trioxide from magmatic sources, 38
Welo, L. A., and Baudisch, O., on two-stage transformation of magnetite into hematite, 180
Westgate, L. G., on the Salmon River district, 495
Wetzig, B., on origin of Huelva ores, 602
Wherlites, analyses, 324
White, David, informal communication by, 525
on histometabasis, 731
Whitehead, T. H., and Eastwood, T., review of book by, 849
Whitehead, W. L., on intergrowths in ore minerals, 44
Whitehead, W. L.—*Continued*
on light-etching of minerals, 673
Whiteness of South Carolina clays, 382
Whiting, A. L., on the relation of aluminum to the activity of soil microörganisms, 492
Whitman, A. R., on synthetic production of pyrite, 491
Whitney, J. D., on the diatom theory, 461
Whitney, Milton, review of book by, 534
Whitneyite, 590
Wigglesworth, Edward, on the serpentines of Vermont, 251
Williams talc mine, Vermont, 262
Willis, Bailey, on China, 224
Wise formation, 821
Wisser, Edward, *Oxidation subsidence at Bisbee, Arizona*, 761–790
Wong, W. H., on mineral resources of China, 225
Wood River mining region, lead from, 826
Wrangell-Revillagigedo belt, Alaska, 165
Wright, F. E., and C. W., on different degrees of metamorphism in Alaska mineral deposits, 171
Wülfing-Rosenbusch, review of book by, 645
Wyckoff, R. G., on the structure of magnetite, 184

X-ray method of crystal analysis, 23

Yenanfu phase of Shensi formation, China, 75
Yenchang phase of Shensi formation, China, 75
Yueh-men-kou coal measures, China, 67

Zavaritsky, A. N., *Classification of magmatic ore deposits*, 678–686
on pyrite deposits of Russia, 604
Zeolite formation, 486
Zimmermann, M., on optimum diatom development, 364
Zinc, in ore deposits, 238
microchemical tests for, 843
Zonal arrangement of minerals in the Cornish lodes, Recent evidence confirming the (Davison), 475; discussion, 844
Zonal distribution, ores of Hyder district, Alaska, 499
Zonal distribution of ore deposits in central Europe (Berg), 113

CONTENTS OF VOLUME XXII

Number 1.

Tin Ores of Chocaya, Bolivia ..... *M. J. Buerger and J. L. Maury* 1
Separation of Fossils, etc., by Heavy Liquids, in Oil Geology .. *M. H. Hanna* 14
Hydrothermal Alteration of Certain Silicate Minerals ..... *R. J. Leonard* 18
Intergrowths of Chalcopyrite and Cubanite ..... *G. M. Schwartz* 44
Coals of Shensi and East Kansu, China ..... *M. L. Fuller and F. G. Clapp* 62
Editorial:
Primary Conceptions in Ore Geology ..... *Augustus Locke* 80
Memorial, James Furman Kemp ..... *Waldemar Lindgren* 84
Discussion and Communications:
Earth Temperatures ..... *W. T. Thom, Jr.* 91
Successive Banding around Rock Fragments ..... *H. C. Boydell* 94
Antipathy of Bornite and Pyrrhotite ..... *Freleigh F. Osborne* 99
Reviews:
Rocks and Rock Minerals (Pirsson and Knopf) ..... *F. F. Grout* 102
Gestaltungsgeschichte der Erde (Kober) ..... *F. L. Ransome* 104
Chemische Bodenanalyse (Gedroiz) ..... *T. F. Buehrer* 105
Geology of Oil, Oil Shales and Coal (Stuart) ..... *A. R. Denison* 106
Petrology of the Igneous Rocks (Hatch and Wells) ..... *W. M. Agar* 107
Sodium Sulphate of Western Canada (Cole) 108
Society of Economic Geologists 109
Scientific Notes and News 110

Number 2.

Zonal Distribution of Ore Deposits in Central Europe ..... *Georg Berg* 113
Origin of California Petroleum ..... *J. R. Takahashi* 133
Types of Mineralization and of Coast Range Intrusives .... *A. F. Buddington* 158
Changes in the Oxidation of Iron in Magnetite ..... *L. H. Twenhofel* 180
Editorial:
Hot Springs and Magmatic Emanations ..... *Waldemar Lindgren* 189
Discussion and Communications:
Preparation of Polished Sections of Ores ..... *G. M. Schwartz* 193
Magnesite Deposits of Manchuria ..... *K. Niimony* 195
Reviews:
Ore Deposits of the Jerome and Bradshaw Mountains Quadrangles, Arizona (Lindgren and Heikes) ..... *J. T. Singewald, Jr.* 200
Supplement to an Introduction to Sedimentary Petrography (Milner) *R. S. Poor* 204
Metallographic Researches (Benedicks) ..... *F. F. Osborne* 205
Handbook for Prospectors (von Bernewitz) ..... *Alan Bateman* 206
Stories in Stone (Lee) ..... *Alan Bateman* 207
Practical Oil Field Geology, 4th ed. (Hager) 207
Society of Economic Geologists 208
Scientific Notes and News 209

Number 3.

Minerals in Relation to Possible Development in the Far East. *H. Foster Bain* 213
Fractionation and Decomposition of Petroleum in Capillary Migration
C. W. Cook 230
Relations of Oxygen and Sulphur Minerals in Ore Deposits. *B. S. Butler* 233
Origin of the Vermont Talc Deposits. *J. L. Gillson* 246
Equilibrium Relations of Pyrrhotite and Pentlandite. *W. H. Newhouse* 288
Editorial:
Facts and Theory in Mining Geology. *Per Geijer* 300
Discussion and Communications:
Paragenesis of Minerals in the Butte Veins. *W. Lindgren* 304
Changes in the Oxidation of Iron in Magnetite. *G. Gilbert* 308
Natural Gas Associated with Oil Deposits. *M. Stuart* 310
Reviews:
Outlines of Mineral and Water Power Resources of the Gold Coast, British West Africa (Kitson). *F. L. Ransome* 312
Treatise on Sedimentation (Twenhofel et al.). *C. R. Longwell* 313
Index to Stratigraphy of Oklahoma (Gould and Decker). *R. S. Poor* 315
The New Universe—An Outline of the World in Which We Live (Brownell). *Alan Bateman* 315
Chemistry in the World's Work (Howe). 316
Scientific Notes and News. 317

Number 4.

Geology of the Platinum Metals. *J. H. L. Vogt* 321
Diatom "Epidemics" and Analysis of Diatom Oil
L. B. Becking, C. F. Tolman, H. C. McMillin, John Field, T. Hashimoto 356
Alunitic Gold Ore in the Black Hills. *F. F. Grout and G. M. Schwartz* 369
Origin of Cretaceous White Clays of South Carolina. *F. R. Neumann* 374
Underground Photography without Flashlight. *L. C. Graton* 388
Editorial:
Our Journal. *Alan Bateman* 400
Discussion and Communications:
Intimate Intergrowths and Mutual Boundaries as Proof of Contemporaneous Deposition. *W. H. Newhouse* 403
Tourmaline-bearing Cinnabar Veins, Mazatzal Mountains, Ariz.
Karl Hummel 407
Reviews:
Die metallogenetischen Epochen und Gebiete von Siberian (Obrutschew)
F. L. Ransome 409
Chemistry in Modern Life (Arrhenius). *Alan Bateman* 411
Map of the Mineral Deposits of South America (Stappenbeck)
J. T. Singewald, Jr. 412
Campbell Coal Map of the United States. *Alan Bateman* 414
Manganese Deposits near Postmasburg, West of Kimberley (Hall)
C. H. Behre, Jr. 414
The Mines Handbook, Vol. XVII (1926) (Neale). 415
Geographical Study of Coal and Iron in China (Smith). 416
Scientific Notes and News. 417

Number 5.

Oxidation Products from Sphalerite and Galena
P. F. Boswell and Roland Blanchard 419
Biogenesis of Hydrocarbons by Diatoms.....*C. F. Tolman* 454
Zonal Arrangement of Minerals in the Cornish Lodes.....*E. H. Davison* 475
Enrichment of Bauxite Deposits by Micro-organisms.....*G. A. Thiel* 480
Mineral Deposits of the Hyder District, Southeastern Alaska..*W. B. Jewell* 494
Editorial:
Exploitation of Foreign Minerals.....*C. K. Leith* 518
Discussion and Communications:
A Physico-chemical Theory of Metasomatism.....*V. M. Goldschmidt* 521
Exploring and Repairing Leaky Artesian Wells..... 523
Doctors in Geology and Geography in 1927.....*David White* 525
Reviews:
Laterit, Material und Versuch erdgeschichtlicher Auswertung (Harrassowitz.).....*R. J. Leonard* 530
The Geology and Metal Deposits of Chile (Little).....*W. M. Agar* 531
Geology of South Africa (Du Toit).....*Alan Bateman* 533
Geology of Alabama (Adams, Butts, Stephenson, Cook)
Charles Schuchert 533
Soil and Civilization (Whitney).....*Alan Bateman* 534
Kleine geologische Karte von Europa, and Tektonisches Bild von Europa (Beyschlag and Schrieb).....*F. L. Ransome* 534
Scientific Notes and News..... 535

Number 6.

Geological Relations of the North African Iron Ores.....*Per Geijer* 537
Diatoms in Western Oregon Shales.....*H. G. Schenck* 565
Ore Deposits of the Rio Tinto (Huelva) District, Spain.....*Alan Bateman* 569
Bauxite Deposits of the Southern States.....*Geo. I. Adams* 615
Igneous Dikes in Bandera County, Texas
J. M. Dawson, Marcus Hanna, and Grady Kirby 621
Editorial:
A Needed Line of Research.....*H. Ries* 625
Discussion and Communications:
Two Kinds of Magnetite?.....*W. H. Newhouse and W. H. Callahan* 629
The Phosphate Deposit on Ocean Island.....*Launcelot Owen* 632
Reviews:
Leached Outcrops as Guides to Copper Ore (Locke)....*B. S. Butler* 635
The Scientific Principles of Petroleum Technology (Gurwitsch)
W. L. Russell 639
Geology and Ore Deposits of the Ducktown Mining District
Alan Bateman 640
Die Künstlichen Edelsteine (Michel).....*J. W. Gruner* 641
Text-book of Mining Geology (Park).....*W. M. Agar* 643
Principles of Human Geography (La Blache).....*Edwin Binney, Jr.* 644
Mikroskopische Physiographie der Mineralien und Gesteine, I–2 (Rosenbusch).....*W. S. Bayley* 645
West Virginia Geological Survey, 1926 (Reger)..... 645
Selenium: A List of References (Doty)..... 645
Society of Economic Geologists..... 646
Scientific Notes and News..... 647

Number 7.

Applied Geophysical Methods in America ..... *D. C. Barton* 649
Magnetic, Electro-Chemical and Photo-Chemical Tests of Opaque Minerals ..... *H. E. McKinstry* 669
Classification of Magmatic Ore Deposits ..... *A. N. Zavaritsky* 678
Origin of the Gunflint Iron-bearing Formation ..... *J. E. Gill* 686
Replacement vs. Impregnation in Petrified Wood ..... *R. N. St. John* 729
Editorial:
The Pipe Form of Ore Deposit ..... *P. A. Wagner* 740
Discussion and Communications:
Note on the Origin of the Rio Tinto Orebodies ..... *G. V. D uglas* 742
Changes in Oxidation of Iron in Magnetite—Two Kinds of Magnetite? ..... *J. W. Gruner* 744
Reviews:
Physico-Chemical Geology (Rastall) ..... *F. F. Osborne* 750
Lehrbuch der Geophysik (Gutenberg) ..... *C. A. Heiland* 752
What Duty to Support the Surface Does a Subsurface Owner Owe? (Bosworth) ..... *W. A. Price* 755
Soil Mineralogy (Burt) 756
Grundlagen der Petrographie (Erdmannsdörfer) 757
What the Coal Commission Found 757
Scientific Notes and News 758

Number 8.

Oxidation Subsidence at Bisbee, Arizona ..... *Edward Wisser* 761
Oil and Gas Possibilities of Virginia ..... *Albert W. Giles* 791
A Lead Ore Consisting of Native Lead, Leadhillite and Lithargite ..... *Earl V. Shannon* 826
Microchemical Tests in the Identification of Opaque Minerals ..... *H. E. McKinstry* 830
Discussion and Communications:
The Zonal Arrangement of Minerals in the Cornish Lodes ..... *J. A. Dunn* 844
Changes in the Oxidation of Iron in Magnetite ..... *Percy A. Wagner* 845
Reviews:
The Principles of Petrology (Tyrell) ..... *R. S. Poor* 847
Geology of the Southern Part of the South Staffordshire Coalfield (Whitehead and Eastwood) ..... *F. L. Ransome* 849
Grundlagen der Erdbebenkunde (Gutenberg) ..... *H. W. Rose* 850
Grundzüge der praktischen Bodenkunde (Stremme) ..... *C. F. Shaw* 851
Field Astronomy for Engineers and Surveyors 853
Linking Science and Industry (Metcalf) 853
Scientific Notes and News 854
Index, Volume XXII 856
Contents, Volume XXII iii